

# HW-5

5.1) 1) Quad tree = G, G, G



1) G, G, G, G

2) B, B, W, G B, B, G, W W, G, G, W W, G, G, W

3) WBWB BWBW WBWB BWBW

BWBW BWBW

2) Run Length

<u>n1</u>	<u>n2</u>	<u>Run</u>
0	6	8
0	7	8
0	6	8
3	5	2
3	4	2
3	3	2
3	2	2
3	1	2
3	0	2



# HW-5

## 2) Fourier Transforms

points

$$0, 8 = 8j$$

$$1, 8 = 1 + 8j$$

$$2, 8 = 2 + 8j$$

$$3, 8 = 3 + 8j$$

$$4, 8 = 4 + 8j$$

$$5, 8 = 5 + 8j$$

$$6, 8 = 6 + 8j$$

$$7, 8 = 7 + 8j$$

$$8, 8 = 8 + 8j$$

$$8, 7 = 8 + 7j$$

$$8, 6 = 8 + 6j$$

$$7, 6 = 7 + 6j$$

$$6, 6 = 6 + 6j$$

$$5, 6 = 5 + 6j$$

$$5, 5 = 5 + 5j$$

$$5, 4 = 5 + 4j$$

$$5, 3 = 5 + 3j$$

$$5, 2 = 5 + 2j$$

$$5, 1 = 5 + j$$

$$5, 0 = 5$$

$$4, 0 = 4$$

$$3, 0 = 3$$

points

$$3, 1 = 3 + j$$

$$3, 2 = 3 + 2j$$

$$3, 3 = 3 + 3j$$

$$3, 4 = 3 + 4j$$

$$3, 5 = 3 + 5j$$

$$3, 6 = 3 + 6j$$

$$2, 6 = 2 + 6j$$

$$1, 6 = 1 + 6j$$

$$0, 6 = 6j$$

$$0, 7 = 7j$$

$$126 + 164j$$



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$$e^{-j \frac{2\pi k n}{6}}$$

5.2) Points

$$1 \ 2 \quad 1+2j$$

$$2 \ 2 \quad 2+2j$$

$$3 \ 2 \quad 3+2j$$

$$3 \ 3 \quad 3+3j$$

$$3 \ 4 \quad 3+4j$$

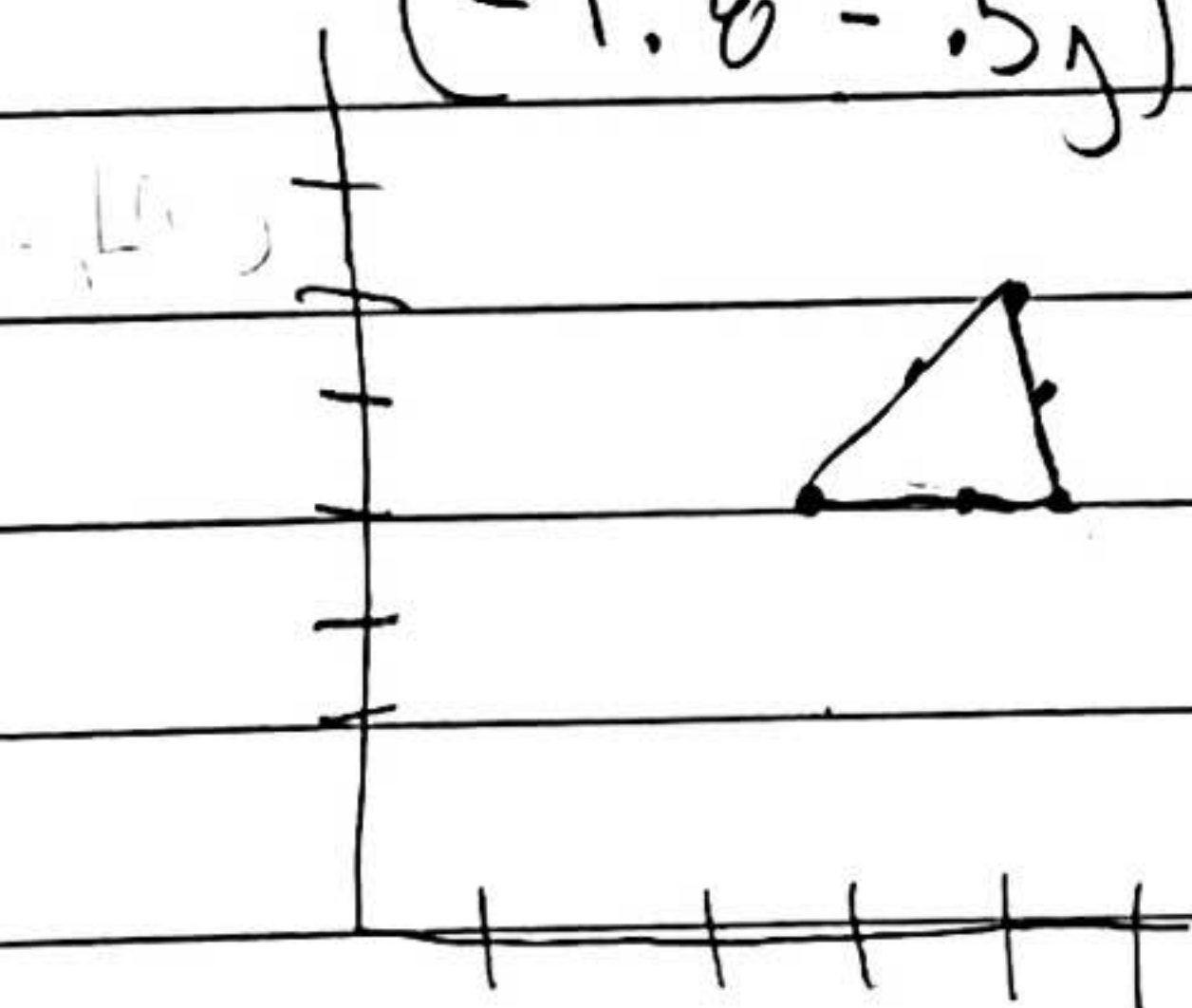
$$2 \ 3 \quad 2+3j$$

$$(1,1) = e^{-j \frac{2\pi(1)}{6}}$$

	0	1	2	3	4	5
$Z[0]$	$(1+2j) + (2+2j) + (3+2j) + (3+3j) + (3+4j) + (2+3j)$					
$Z[1]$	$(1+2j) +$					
$Z[2]$	$(1+2j)$					
$Z[3]$	$(1+2j)$					
$Z[4]$	$(1+2j)$					
$Z[5]$	$(1+2j)$					

$$Z[N] = \{ (14+16j), (-5.598-1.5j), (-.1339-.5j), (6-3.55j), (-1.66-.5j), (-.401-1.5j) \}$$

$$2) Z[N] = \{ (26+22j), (-5.5-1.5j), (-.13-.5j), (6.43-7.4j), (-1.6-.5j), (-.4-1.5j) \}$$



3,3  
4,3  
5,3  
5,4  
5,5  
4,4



## HW-5

4)  $2 \times 2[n]$  24

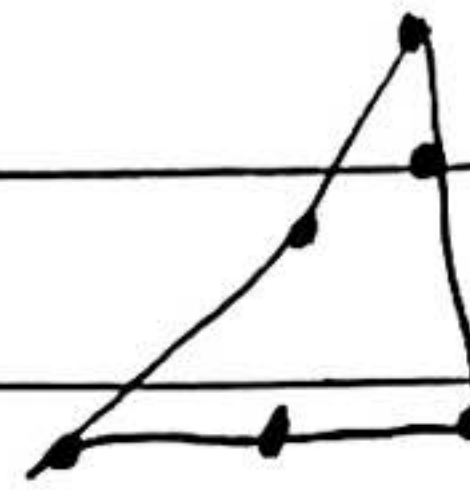
44

64

66

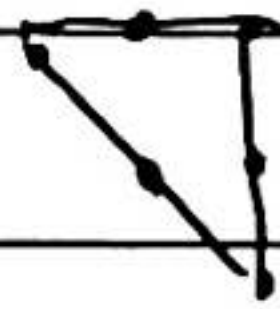
68

46



$$5) z_2[n] = \frac{1}{2} (26 + 32y, (-11.2^{-3} - 3y), (-.26 - 1y), (1.2^{-14} - 7.1^{-15}y), (-3.7 - 1.0y), (-.6 - 3y))$$

6)



$$7) z_3[n] = \frac{1}{2} (16 - 14y, (-1.5 + 5.6y), (-.5 + .13y), (-3.5^{15} - 5.9^{15}y), (-.5 + 1.6y), (-1.5 + .4y))$$

$$5.3) (0, 255) (0, -124) (0, 12) (0, 1) (0, -33) (1, -1) (1, -7) (1, 1) (1, 1)$$

Residual prediction

5.4)

00	00	00	00	00	00	00	00
01	-8-1	00	00	-1-1	-11	00	00
0-1	00	00	00	-11	-11	00	00
00	00	00	-10	00	00	00	00
00	00	01	00	00	00	00	00
00	00	00	00	-20	-10	00	00
00	00	00	00	00	00	00	00
00	00	02	02	02	10	10	10

